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## Energy Justice and the Capability Approach— Introduction to the Special Issue

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### Introduction

This special issue emerges from the conference “Energy justice and the Capability Approach—interdisciplinary perspectives”, which took place in Malmö in the south of Sweden 12–13 September 2018. The point of departure was the burgeoning interest in studying issues of energy justice among social scientists and philosophers, together with the fact that the Capability Approach has become one of the most influential theoretical tools for conceptualising questions related to social justice. The purpose of the conference was to explore the potential of the Capability Approach for approaching issues of energy justice. At the conference, keynote lectures and papers with that purpose were presented from the perspective of the social sciences and philosophy. They covered diverse topics, such as energy justice in the Brazilian Amazon, ethics and nuclear energy, and natural gas development in central Arkansas. Building on the conference’s success, this special issue now extends the theoretical, conceptual and empirical insights gained during this session, including contributions from authors beyond those that attended the conference, to present a state-of-the-art exploration of how the Capability Approach can be applied to the field of energy justice, and what might be gained by doing so.

### Energy, Capabilities and Justice

It would be hard to argue that energy services are not a precondition for realising many capabilities of relevance to day to day life. For example, people generally need energy in some form to cook food, to heat or cool their homes, to move around, and to light up their streets. Moreover, in today’s digitalised world, most of us are dependent on access to electricity to get information

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and to communicate with authorities or with friends and relatives. A lack of access to energy or energy services therefore can quickly lead to multidimensional capability deprivation. This reasoning led Day, Walker, and Simcock (2016) to define energy poverty in capabilities terms, as “an inability to realise essential capabilities as a direct or indirect result of insufficient access to affordable, reliable and safe energy services, and taking into account available reasonable alternative means of realising these capabilities” (260). They argue that defining energy poverty in terms of capabilities in this way draws attention to its impacts on multiple dimensions of wellbeing and human flourishing.

Understanding energy consumption as a pre-requisite for a dignified life raises questions about the justice of the distribution of energy and energy services, and about the distribution of burdens, as energy production and consumption have negative environmental impacts that affect individuals who are often not the same as those who benefit. These impacts can also be put in capability terms. For example, driving a petrol-powered car helps to realise the capability of mobility, but it contributes to climate change and thereby has negative consequences for the capabilities of oneself and others, including people living in other parts of the world. These externalities are also a matter of justice.

In order to promote the realisation of a threshold of certain capabilities for all individuals, as advocated by, for example, Nussbaum (2000), it would be necessary to both guarantee access to energy services and to limit the negative consequences of energy production. One benefit of approaching energy poverty and its alleviation through the capabilities lens, as Day, Walker and Simcock argue, is that it shifts the focus on what we want to achieve with energy rather than energy itself (or energy services). Whilst acknowledging the essential nature of energy consumption in many cases, it also prompts us to consider how capabilities may be supported, and therefore energy poverty alleviated, by non-energy means. This is a strategy that is particularly important in the context of climate change.

Justice is, of course, already a focus of the Capability Approach, with Nussbaum referring to it as a partial but incomplete theory of justice (2000, 75), with her “central capabilities” akin to rights, and Sen (2009) arguing for capabilities to be the basic currency by which questions of justice are decided. The academic field that has grown in recent years to become known as “energy justice” has, however, generally drawn more extensively on other theories of justice. Influenced by preceding theoretical developments in environmental justice (e.g., Schlosberg 2007), for many scholars, energy justice is conceived through a conceptual framework of three interconnected dimensions—(a) distributive justice, (b) procedural justice and (c) justice as recognition (Walker and Day 2012; Jenkins et al. 2016), where procedural justice focuses more on fair processes, and recognition on eliminating discrimination, stigma and disrespect, and paying attention to the differential needs of different groups.

Specific theoretical references are diverse but include by way of illustration, Rawls (1971), Young (1990) and Fraser (2008).

Although the Capability Approach has distributional justice underpinnings, conceived as an alternative to Rawlsian and utilitarian formulations, it has been argued that the Capability Approach might integrate the concerns of wider different dimensions of justice: democratic participation, and in Sen's approach, deliberation, are core values; it also explicitly acknowledges differential needs (Schlosberg 2007; Day 2017). Hence either as a distributive or an integrated approach, energy justice could be approached primarily or exclusively through the Capability Approach. Alternatively, it may be combined with the abovementioned "3 tenets" conceptual framework, and / or other approaches to justice, with the aim of providing a more holistic account, or examining tensions. Both of these directions have been taken in the limited literature on energy justice and capabilities published to date, which we briefly discuss next, but this is a conversation that would undoubtedly stand more development.

### **Previous Research Applying the Capability Approach to Questions of Energy Justice**

To date, a small body of published work has analysed different normative issues of energy production and consumption with the help of the Capability Approach from a somewhat philosophical standpoint. In one of the first contributions to the scientific debate to combine the Capability Approach with energy justice thinking, Sovacool and Dworkin (2014) claim, with the inspiration from Nussbaum's list of central capabilities, that everyone has the right to a minimum level of energy. Hillerbrand (2015, 2018) argues that the Capability Approach can function as an overarching framework for elucidating the interconnections between human well-being, the natural environment and technology. In contrast to preference-based Utilitarianism, it is based on an objective understanding of well-being that allows us to make interpersonal comparisons, and thus, it can serve as a metric for justice considerations.

Wood and Roelich (2019) also argue that the Capability Approach can function as a theoretical point of departure for analysing normative issues related to energy use, whereby they see it as a holistic conception of well-being that can be utilised for analysing and handling ethical conflicts. They highlight the fact that fossil fuel combustion leads to increased well-being at the same time as it contributes to global warming, which will negatively affect well-being. To mitigate climate change, reduced fossil fuel combustion is necessary, but they claim that we need to recognise that measures taken to reduce fossil fuel combustion may have a more serious impact on household that already from the outset experience energy poverty. Thus, Wood and Roelich develop a conceptual framework based on the Capability Approach that may help us to avoid situations in which climate change mitigation leads to increased inequalities.

The Capability Approach has also been employed for analysing issues of intergenerational justice related to energy production and consumption. Melin and Kronlid (2019) apply the approach to analyse the implications for intergenerational justice of three possible energy scenarios for Sweden and claim that from this perspective, we have strong reasons for also considering the capabilities of future humans, based on their human dignity.

Drawing on wider social science perspectives, and in more applied work, scholars have expanded on the link between energy poverty and capability deprivation proposed more theoretically by Day, Walker, and Simcock (2016). Most of this applied work has been in relation to Global South settings and efforts to alleviate energy poverty through access to clean, modern energy. Malakar, Greig, and van der Fliert (2018), studying villages in rural India, find that the use of solid fuels demonstrably acts as direct limitation on capabilities, but that this usage is nevertheless entrenched through social practices. Nevertheless, in a development of this work, Malakar and Day (2020) find that both firewood usage and liquid petroleum gas usage were felt by the women using them to make positive contributions to capabilities, albeit in different ways. This work illustrates how the usage of the Capability Approach helps illuminate complex relationships between fuel usage practices and wellbeing, with useful insights for the design and implementation of future interventions.

Following the logic of the Capability Approach's focus on outcomes rather than resources, authors have increasingly begun to argue that electrification programmes should be conceived of as aiming to expand the capabilities of individuals, households and communities (Tarekegne 2020; Jodoin 2021; Chipango 2021), rather than concentrating only on expansion of access to electricity itself. A handful of studies have sought to evaluate the impacts of technological energy system interventions on capabilities in less developed regions: Fernández-Baldor et al. (2014) in rural Peru; Malakar (2018) in rural India; Arnaiz et al. (2018) in rural Bolivia and Phillipines; and Cole (2018) in urban and peri-urban Afghanistan. All find that capabilities were overall expanded by greater access to cleaner energy, but all also found that the improvement in capability sets was not socially even. Some households were not able to afford the cost of electricity or appliances (Malakar 2018; Cole 2018), gender was an important mediator (Fernández-Baldor et al. 2014) and Arnaiz et al. (2018) even concluded that in some cases, some capabilities and functionings were reduced by the abrupt change, for example, a resultant change in diets was detrimental to health. In this work, the application of the Capability Approach illuminates how providing energy access is not enough in itself to ensure positive outcomes, or that outcomes will be equal and fair; other support—material and other forms—and attention to conversion factors will be needed. Writing in this journal, the Journal of Human Development and Capabilities, Chipango (2021) analyses energy system arrangements in Zimbabwe to draw attention to the power relations that condition access to

energy and argue that attention to these social relations is fundamental to achieving the substantive capability benefits of energy system change.

Perhaps reflecting the geographical application of the Capability Approach more generally, there has, to date, been less application of a capabilities lens to energy poverty research in more developed regions. Bartiaux et al. (2018) create a typology of energy poor households in Belgium, based on their ability to keep warm and to pay energy bills, and show that such households are also restricted in various fundamental capabilities. Willand and Horne (2018) somewhat similarly address thermal comfort and health as capabilities among frail and older households in Australia. Middlemiss et al. (2019) draw on discussions with energy-compromised households in the UK to add an important theoretical point that capabilities, such as social relations, also mediate access to energy, i.e., the relationship between capabilities and energy access is recursive.

Although a justice discourse is not always explicit in this applied work, it can be argued that addressing energy poverty is per se a move to improve energy justice, where energy justice is an overarching, umbrella concern. By appraising such interventions in terms of capabilities, authors are providing an assessment of distributional energy justice. Furthermore, attention to power relations, and differential needs and outcomes goes some way to connecting with procedural and recognition concerns. Other authors, however, have sought to integrate the notion of capabilities in a wider framework which also draws more explicitly on other notions of “energy justice”, typically “3 tenets” or “triumvirate” conception of distributional, procedural and recognition justice mentioned earlier, but also including other frameworks such as the 10-point “principled approach” of Sovacool and Dworkin (2014); and the affirmative and prohibitive principles of Sovacool, Sidortsov, and Jones (2013). Tarekegne (2020) and also Jodoin (2021), for example, use various of these justice principles to suggest a framework for justice-informed energy planning in Sub-Saharan Africa that would optimise the outcomes in terms of improved capabilities. In the rather different context of Australia, Willand and Horne (2018) relate procedural injustices and recognition problems to the capability of older and frail householders to keep warm, and thus secure their basic capability of health.

Meanwhile, Velasco-Herrejon and Bauwen’s work in Mexico, rather than focusing on energy poverty and its alleviation, conceptually relates capabilities and the “3 tenets” of distributive, procedural and recognition justice in explaining levels of social acceptance of utility scale wind energy developments among local largely indigenous communities (Velasco-Herrejon and Bauwens 2020). De Wildt et al. (2020) also develop the idea that social acceptance of new energy systems might be related to distributions of capability impacts, which they explore in terms of different types of “capability conflicts”, both between different capabilities in the same household, and between the capabilities of different groups. Their work uses agent-based modelling in an exploratory



analysis of possible configurations of decentralised energy systems in a European setting.

Evidently, then, work in this area has been gathering pace. The work so far has started to confirm the value of bringing the Capability Approach to these questions, but there are many areas calling for further development. The philosophical-normative discussions so far have mainly been concerned with arguing for why the Capability Approach has advantages compared to resource-based and well-being oriented approaches. This is a contentious issue that deserves further debate, but there is also a need of clarifying how the Capability Approach can be more specifically helpful in appraising the negative impacts of energy production, or weighing up benefits and burdens. A further philosophical issue concerns the question of how to justify a right to energy. The applied energy social science work has usefully highlighted the possible benefits of using the Capability Approach for evaluating energy development programmes, especially in rural regions in the Global South, but it has the flexibility to be applied to a wider variety of cases and contexts. Its potential for planning and designing of energy systems to build in justice has also had little exploration so far.

We are pleased to present this Special Issue collection, which addresses these gaps and more, to provide a timely contribution to the field. As a set, these papers demonstrate the range of the Capability Approach and the justice-related questions in the energy field that it can be deployed to address. We hope that it also brings to capability scholars a new field of interest that provides ground for further theoretical discussions and developments in the approach. In what follows, we now briefly introduce the papers and their contributions, with the aim that readers will be inspired to follow through to the more rewarding, full contributions.

## **Introducing the Special Issue Papers**

Two of the contributions, by Corvino, Pellegrini-Masini, Pirni and Maran, and Frigo, Baumann and Hillerbrand respectively, have a philosophical orientation and utilise the Capability Approach to analyse questions related to what constitutes a morally justified energy production and consumption. Corvino et al. make a case for capabilities being the currency for evaluating losses and gains that arise as a consequence of the establishment of energy infrastructures. In line with the origins of the Capability Approach, they argue that an approach based on realised wellbeing would not consider the fact that some individuals, due to adapted preferences, may have a low valuation of certain resources that are lost in connection with the establishment of energy infrastructures; while a resource-based approach has the disadvantage of not considering that two individuals due to physical or social differences may experience different levels of welfare as a consequence of having access to the same amount of energy.



Moreover, Corvino et al. argue that in determining the right compensation for losses resulting from the establishment of an energy infrastructure, we should use as a benchmark a hypothetical capability threshold, concluding that the development of an energy infrastructure should not be allowed in situations where it is impossible to restore a basic capability in a non-monetary way and where monetary compensation is insufficient.

Frigo, Baumann and Hillerbrand's contribution develops discussions on the notion of a right to energy. Like others, they highlight that the Capability Approach has the advantage of acknowledging that it is not resources in themselves that are valuable for their own sake, but what individuals can do or become because of these resources. Moreover, the Capability Approach has a bottom-up perspective, as it starts with the concrete needs of individuals and aims to promote their human dignity and freedom of choice. Frigo et al. consider the concept of right to energy and conclude that it should be focused on energy services rather than energy itself. The authors discuss the relationship between access to energy services and HDI (Human Development Index) levels, and find that up to a certain level, increases in access to energy services lead to significantly higher HDI levels. They conclude that three energy services—cooking fuel, nutrition and electricity—are essential for promoting several basic capabilities and should be regarded as aspects of a human right to access energy services.

Groves, Shirani, Pidgeon, Cherry, Thomas and Roberts propose that care ethics can contribute to the debate on energy justice and the Capability Approach. They claim that care ethics functions as a resource for better understanding how energy production and consumption affect people's capabilities, as it provides insights on how power and responsibility are connected to social relationships. The focus on the moral importance of dependence within care ethics helps us analyse how damage can occur due to the complex relationships of social and material dependence created by energy systems. The authors demonstrate how a theoretical framework including elements from both the Capability Approach and care ethic enhances our understanding of energy justice by applying such a framework to an interview study of individuals living in South Wales who experience energy poverty. They conclude that the challenges the respondents experience in relation to their use of energy are formed by the fact that they are dependent on a complex socio-technical energy system characterised by relationships of unequal power. Groves et al. argue that care ethics contributes to the analysis of how the realisation of capabilities is dependent on both social relationships and material conditions.

Bartiaux, Day and Lahaye employ the Capability Approach to contribute to the understanding of how energy poverty (in the Global North) affects many aspects of well-being, not only health, which is more commonly focused on. Based on an interview study of individuals living in Belgium who experience constrained energy services, the paper unpacks the connections between energy poverty and deprivation in five of Nussbaums' Central Capabilities

and additionally argues that energy poverty also influences recognition issues, as negative emotions such as shame and anxiety hinder the energy poor from expressing their problems publicly. Drawing on Wolff and De Shalit's (2007) notion of "corrosive disadvantage" Bartiaux et al make a case that different forms of capability deprivation are mutually reinforcing, and therefore, that measures against energy poverty can help households to find ways out of vicious circles of capability deprivation. Like Groves et al, they found that those who managed to cope with their situation did so not only because of material help, but also thanks to supportive social relationships. They conclude that energy poverty should be considered a social problem, not only an economic or technical one.

Continuing on the energy poverty theme, and turning to the United States, Lee, Hana and Byrne's paper problematises common definitions and metrics which frequently foreground physical or monetary conditions to instead apply a capability-based approach, which, they argue, better centralises questions of well-being and illuminates deprivations of freedom. Empirically, and using a case study of the Low Income Home Energy Assistance Program and the Weatherization Assistance Program in the US, they adopt the approach to assess pre-existing policies, thereby making a further contribution to work exploring its use as an assessment framework. They consider, in particular, the efficacy of current policy strategies for addressing the deprivation of people's energy-related capabilities in the long run. They find that current policy approaches to alleviate or eradicate energy poverty are not structured according to standards of capability energy justice. Echoing Bartiaux et al's point of the need to approach energy poverty from a social as well as technical perspective, they suggest instead that community-based solutions focused on empowerment can have a more profound impact on the attainment of capabilities.

Rajagopalan also uses the Capability Approach as an assessment framework, exploring the potential of decentralised renewable energy in achieving human development and well-being enhancement through a case study of solar micro-grid users in India. The paper identifies what and how capabilities are affected in rural communities as a result of the integration of such technologies and draws from these potential lessons to improve their deployment as a development-based initiative. Utilising the focus of the Capability Approach on individuals rather than for example households, Rajagopalan makes a particular contribution in relation to gender, identifying that although women benefited substantially from the new technology, gender-based social biases were re-inforced rather than overcome. Somewhat echoing Chipango (2021)'s reflections in relation to Zimbabwe, published earlier in this journal, Rajagopalan cautions that power dynamics of the specific social and cultural context need to be investigated in order to understand how interventions such as solar microgrids will or will not expand capabilities, and contribute to energy justice for women.

Hillerbrand, Milchram and Schippl's paper looks to the future, and experiments with assessing the potential impacts of future developments in energy systems in terms of capabilities, as a way of addressing justice and ethical concerns in an anticipatory manner. They address two forms of digitalisation, one of which is already to some extent materialised, in the form of smart grids, and the other of which is less developed and more speculative in the form it will take, that of automated vehicles. Primarily concerned with distributive justice, they argue for the focus on capabilities as what we should be concerned with the distribution of. As the basis of assessment they use Hillerbrand and Goldammer's (2018) energy system—focused adaptation of Nussbaum's list of central capabilities, and significantly, following Melin and Kronlid (2019), they include the capabilities of future generations in their sphere of concern, by addressing sustainability. Their analysis highlights areas of concern in relation to both types of development that are currently overlooked in energy justice discourses, possible trade-offs for example between privacy and sustainability, and anticipates likely distributional inequities. Their paper makes a compelling case for such forward-looking assessments to bring ethical dimensions explicitly into the development thinking around infrastructures given their potential for lock-in and long time frame for development and adaptation.

Finally, Hunt, O'Neill, Riley and Maynard address proposed and potential future renewable energy developments in Kimberley and Pilbara regions of Western Australia. They consider their particular impact on Indigenous, Aboriginal communities, who hold significant rights and interests in the land on which new technologies will be integrated and must, it is very apparent, be recognised within the low-carbon transformation. In this vein their paper explores how Indigenous people can participate in and benefit from such transitions across scales with a focus on which capabilities Indigenous people can achieve from a just approach to a renewable energy transition, and what capabilities they require in order to gain maximum benefit. Their findings point towards reliable, affordable and appropriate energy playing a fundamental role in furthering long-held community development aims, and models whereby local capabilities and governance frameworks can be harnessed and strengthened towards benefit and cost sharing approaches, thereby aligning systems of reciprocity and exchange. Although not without challenges, they suggest capabilities approaches may offer an alternative lens to consider not just the distribution of costs and benefits, but of the freedoms related to renewable energy transitions on Aboriginal land.

In our view, this collection represents a significant advancement in the body of work on energy justice through the Capability Approach. It takes forward work on energy poverty and capabilities, adding to the understanding of the multi-dimensional impacts of energy poverty, and also yielding insights regarding the socio-material nature of energy poverty in a variety of settings globally. Several papers offer valuable insights regarding what makes interventions

against energy poverty more likely to succeed and to achieve justice, and this includes important reflections on gender and intergenerational justice through sustainability. The utility of the approach for assessing planned and potential future developments is also amply illustrated. Links with more established energy justice theory as well as less used (in energy justice research) ethical and legal frameworks are made, and opportunities represented by a variety of methods and data sources are demonstrated. In all papers, the core strengths of the Capability Approach in drawing attention to outcomes rather than inputs, paying attention to differential needs of individuals, and considering the multidimensionality of a flourishing and dignified life, and the applicability of these in the specific study of energy questions, are reinforced.

There is, nevertheless, plenty more to do. Whilst the strands of work relating to capability-based understandings of energy poverty, and capability-based frameworks for assessing the positive and, to some extent, negative impacts of energy system developments are becoming more established, other areas are more nascent. These include the scalar conflicts and global justice dimensions related to energy production and consumption, and the potential of the notion of “capability ceilings” following Holland (2008, 2014) as well as Corvino et al in this issue, for addressing global and also intergenerational dimensions. Links between the capability approach and procedural energy justice also remain relatively under-examined. Further, as capabilities theorising continues to develop, there will be more to reflect in its application in energy justice, potentially to yield further insights. For these reasons, and many more, we look forward to this special issue serving as a catalyst for further research.

### Disclosure statement

No potential conflict of interest was reported by the author(s).

### Notes on contributors

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